

$\frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) \delta(x-a) dx = f(a)$

an inner system power source for supplying power to the inner components of said DC UPS;

15 a battery unit;

a load detecting circuit for detecting if there is overloading at the output terminal;

```
a switch;
```

9

charging circuit;

a DC voltage conversion circuit for stepping up the low DC output voltage of said battery unit to a high DC output voltage according to the signal from said controller circuit; and

5 a lighting equipment operable with power from said DC voltage conversion circuit;

with this scheme, when there is a normal utility AC input, a signal is sent to said controller circuit from said AC voltage and frequency detecting circuit so as to start operation of said AC to
10 DC conversion and charging circuit and said switch thereby charging said battery unit, as soon as said battery unit is fully charged, a signal is sent to said controller circuit to stop charging said battery unit thereby protecting said battery unit from overcharge; if the utility power is found to be abnormal, being
15 informed by said AC voltage and frequency detecting circuit of such a state, said controller circuit indicates to start operation of said DC voltage conversion circuit so as to continuously supply power to the loads, and at the same time, turn on said lighting equipment.

20 2.The DC UPS of claim 1, wherein a DC to AC inverter is addable for supplying Ac power to other electric appliances.

3.Uninterruptible Dc power system (DC UPS) well applicable as an emergency power source to electrical appliances attached with AC/DC switchable power suppliers (SW power) so as to
25 reduce circuit loss due to power conversion, improve system efficiency, save energy, and maintain stable output voltage,

comprising;

an inner system power source for supplying power to the inner components of said DC UPS;

a battery unit;

5 an AC voltage and frequency detecting and charging circuit for detecting utility AC voltage and frequency, and supplying power to said inner system power source and charging current for charging said battery unit;

10 a load detecting circuit for detecting if there is overloading at the output terminal;

an output voltage detecting circuit for detecting the state of output voltage;

an electromagnetic switch;

15 a controller circuit for receiving signals from said AC voltage and frequency detecting and charging circuit, said battery unit, said load detecting circuit, and said output voltage detecting circuit so as to control the state of said electromagnetic switch and said AC voltage and frequency detecting and charging circuit;

20 a DC voltage conversion circuit for stepping up the low DC output voltage of said battery unit to a high DC output voltage according to the signal from said controller circuit; and

a lighting equipment operable with power from said DC voltage conversion circuit;

25 with this scheme, when there is a normal utility AC input, a signal is sent by said AC voltage and frequency detecting and charging circuit to charge said battery unit and indicate said

controller circuit to actuate said electromagnetic switch for
 outputting an AC power, as soon as the charging of said battery
 unit is completed, said controller circuit interrupts said charging
 circuit so as to protect the battery unit from overcharging; if the
 5 utility power is found to be abnormal, being informed by said AC
 voltage and frequency detecting and charging circuit of such a
 state, said controller circuit indicates to start operation of said DC
 voltage conversion circuit and change over said electromagnetic
 switch so as to continuously supply power to the loads, and turn
 10 on said lighting equipment.

4. The Dc UPS of claim 3, wherein a DC to AC inverter is
 addable for supplying AC power to other electric appliances.